

AMENDMENTS TO THE CLAIMS

Claims 1-21. (Cancelled).

22. (Presently Amended) A V_H **polypeptide** and V_L polypeptide **optionally covalently linked to one another** having in combination with one another a catalytic activity isolated by the method comprising the steps of:

(a) synthesizing a V_H and a V_L -coding gene library containing a plurality of different V_H and V_L -coding DNA sequences by a method comprising the steps of:

(i) preparing a first polynucleotide containing composition, wherein at least a portion of the polynucleotides in said composition comprise a plurality of different V_H -coding sequences;

(ii) preparing a second polynucleotide containing composition, wherein at least a portion of the polynucleotides in said composition comprise a plurality of different V_L -coding sequences;

(iii) amplifying a plurality of V_H and V_L -coding sequences in said respective polynucleotide containing compositions;

(iv) joining in operable combination, V_H and V_L -coding sequences from said V_H and V_L -coding gene library with expression vectors so as to be able to express a V_H and V_L -coding sequence from each vector, whereby a diverse library is formed;

(b) selecting and isolating from said diverse library at least one expression vector capable of producing V_H **polypeptide** and V_L polypeptide **optionally covalently linked to one another** having in combination with one another catalytic activity;

(c) transforming a host cell with said expression vector; and

(d) isolating a V_H **polypeptide** and V_L polypeptide encoded by said vector from said host cell, **wherein said V_H polypeptide and V_L polypeptide are optionally covalently linked to one another.**

23. (Presently Amended) The V_H **polypeptide** and V_L polypeptide of claim 22 wherein said V_H and V_L coding sequences from said V_H and V_L coding library are joined with separate expression vectors.

24. (Presently Amended) A V_H **polypeptide** and V_L polypeptide **optionally covalently linked to one another** having in combination with one another a catalytic activity isolated by a method comprising the steps of:

- (a) preparing a first polynucleotide containing composition, wherein a portion of the polynucleotides in said composition comprise a plurality of different V_H-coding sequences;
- (b) preparing a second polynucleotide containing composition, wherein a portion of the polynucleotides in said composition comprise a plurality of different V_L-coding sequences;
- (c) amplifying a plurality of V_H and V_L-coding sequences from said first and said second polynucleotide containing compositions, respectively, by a method of amplification comprising the step of adding primers capable of hybridizing upstream and downstream from a plurality of said V_H coding sequences and adding primers capable of hybridizing upstream and downstream from a plurality of said V_L coding sequences, under conditions permitting hybridization to occur, whereby a plurality of different amplified V_H and a plurality of different amplified V_L coding sequences are produced;
- (d) joining in operable combination, said amplified V_H and V_L-coding sequences with expression vectors so as to be able to express a V_H and V_L-coding sequence from each vector, whereby a diverse library is formed;

- (e) selecting and isolating from said diverse library at least one expression vector capable of producing a V_H **polypeptide** and V_L polypeptide **optionally covalently linked to one another** which in combination with one another have said catalytic activity,
- (f) transforming a host cell with said expression vector; and
- (g) isolating a V_H **polypeptide** and V_L polypeptide encoded by said vector from said host cell, **wherein said V_H polypeptide and V_L polypeptide are optionally covalently linked to one another.**

25. (Presently Amended) The V_H **polypeptide** and V_L polypeptide of claim 24 wherein said amplified V_H and said amplified V_L coding sequences are joined with separate expression vectors.

26. (Presently Amended) A V_H **polypeptide** and V_L polypeptide **optionally covalently linked to one another** having in combination with one another a catalytic activity isolated by the method comprising the steps of:

- (a) producing a V_H and V_L -coding genetic library, by a method comprising the steps of:
 - (i) adding a first primer, wherein said first primer is capable of hybridizing to a first conserved nucleotide sequence substantially adjacent to a plurality of V_H -coding regions, and said coding sequences are present in a polynucleotide containing composition that comprises a plurality of different V_H and V_L coding sequences;
 - (ii) adding a second primer to said nucleotide containing composition, wherein said second primer is capable of hybridizing to a second conserved nucleotide sequence substantially adjacent to a plurality of different V_H -coding regions;

- (iii) adding a third primer, wherein said third primer is capable of hybridizing to a third conserved nucleotide sequence substantially adjacent to a plurality of V_L-coding regions;
- (iv) adding a fourth primer to said polynucleotide containing composition, wherein said fourth primer is capable of hybridizing to a fourth conserved nucleotide sequence substantially adjacent to a plurality V_L-coding regions;
- (v) amplifying said V_H coding sequences and said V_L coding sequences;
- (b) joining in operable combination said amplified V_H and V_L-coding sequences with expression vectors so as to be able to express V_H and V_L-coding sequence from said vectors, whereby a diverse library is formed;
- (c) selecting and isolating from said diverse library expression vector capable of producing V_H or V_L polypeptides which in combination have said catalytic activity;
- (d) transforming a host cell with said expression vectors; and
- (e) isolating a V_H **polypeptide** and V_L polypeptide encoded by said vector from said host cell, **wherein said V_H polypeptide and V_L polypeptide are optionally covalently linked to one another.**

27. (Presently Amended) The V_H **polypeptide** and V_L polypeptide of claim 26 wherein said amplified V_H and V_L coding sequences are joined into separate expression vectors.

28. (Presently Amended) The V_H **polypeptide** and V_L polypeptides of any of claims 22-27 wherein said V_H **polypeptide** and V_L polypeptides comprise ~~an~~ Fab.

29. (Presently Amended) The V_H **polypeptide** and V_L polypeptide ~~s-and~~ of any **one** claims 22-27 wherein said V_H **polypeptide** and V_L polypeptides comprise a whole antibody.